


PRIZE ESSAY



THE

AGRICULTURE OF LORAIN COUNTY:

BY

N. S. TOWNSHEND,

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AGRICULTURAL SURVEY OF LORAIN COUNTY.

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History.—Lorain county was organized in A. D. 1824, with Elyria as the county town. The first settlements by whites within the present limits of the county were made in the township of Columbia, in A. D. 1807, when the jurisdiction of Cuyahoga county extended westward to Black river: permanent settlements in several towns were made in A. D. 1816. The first settlers of Lorain, as of the whole Western Reserve, were from New England, and were many of them men of intelligence and great energy. They laid the foundations of society so wisely that the Reserve has always maintained a pre-eminence in the State for the intelligence, good order, and thrift of its inhabitants.

In A. D. 1830, and subsequently, there was a considerable immigration of English people, most of whom were farmers and working men, whose labors contributed to bring some of the wetter portions of the county into cultivation. Since 1840 there has been a large immigration from Germany to the northern part of the county. Ignorance of the English language has been a temporary obstacle to the success of these immigrants, but such of their children as are not kept out of the district schools by religious bigotry, soon acquire our language, and exhibit as much attachment to the land of their adoption as though their ancestors had been among the first that landed upon Plymouth Rock. The diverse national tastes and peculiarities of the present inhabitants of the county have already had, and probably for a long time to come will have, a marked influence upon its agriculture and social condition. The New England pioneers who cleared the land were also alive to the value of good roads, of schools, and of churches; the English to ditching, draining, and otherwise improving the land and the stock, and to the beneficial influence of agricultural associations and exhibitions, and the Germans have furnished an excellent example of untiring industry and economy. If all these valuable qualities can be combined in our future population, Lorain, notwithstanding its flat surface and clayey soil, will not fall behind her sister counties in social or industrial progress.

Geography.—Lorain county is on the northern border of the State, and is included in the section known as the Western Reserve. It is bounded on the north by Lake Erie, east by the counties of Cuyahoga and Medina,

south by Medina and Ashland, and west by Huron and Erie. It lies between 41° and $41^{\circ} 30'$ north latitude, and between 5° and $5^{\circ} 30'$ west longitude from Washington, and contains 500 square miles, or 320,000 acres of land.

There are twenty-one townships in the county, each of which is five miles square, except those which have the irregular shore of Lake Erie for their northern boundary, and the townships of the western tier, which lack the usual breadth westward. The townships are named Amherst, Avon, Black River, Brighton, Brownhelm, Camden, Carlisle, Columbia, Eaton, Elyria, Grafton, Henrietta, Huntington, La Grange, Penfield, Pittsfield, Ridgeville, Rochester, Russia, Sheffield and Wellington. Of these towns, Avon, Sheffield, Black River and Brownhelm border on the Lake. The county extends from the Lake five townships southward on its western side. The eastern side is irregular; three townships necessary to complete the parallelogram belong to Medina county, while the township of Columbia, lying eastward of the regular line, has been attached from Cuyahoga.

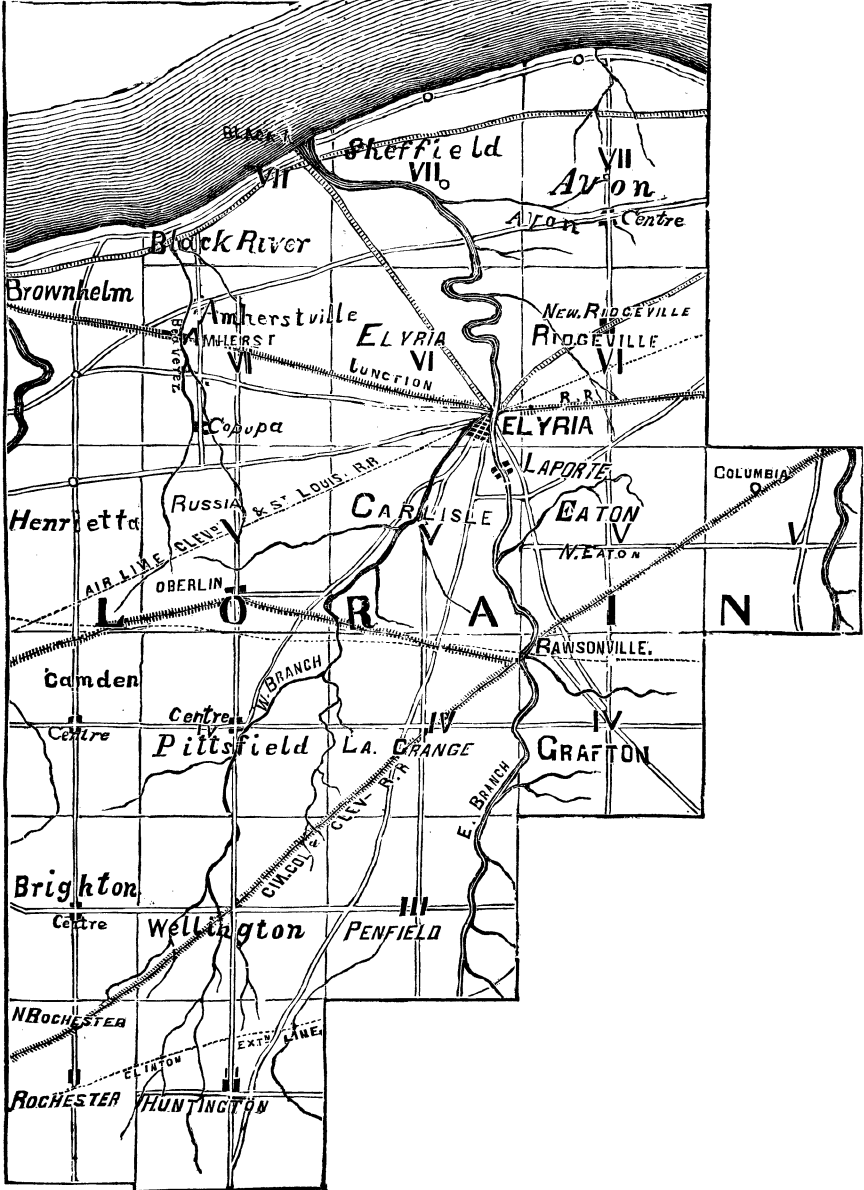
Black river rises in Ashland county, and runs through near the centre of Lorain from south to north, making where it enters Lake Erie, in the township of Black River, the harbor of the same name. From the narrative of Col. James Smith's captivity among the Indians, in A. D. 1755 to 1759, it appears that the name given to this river by the Delaware Indians was Canesadooharie. The falls of both its branches at Elyria afford fine mill privileges, while some distance below the falls the scenery is perhaps the most picturesque in northern Ohio. Vermillion river enters the county on the western border, and after a course of a few miles, turns to the westward again and enters the Lake in Erie county. The western branch of Rocky river runs through the township of Columbia, and enters the Lake in Cuyahoga county.

Geology.—The underlying rock of the greater part of the county is the Waverly sandstone, or rather that form of coarse grained grindstone grit which in part takes its place. Only a few miles east of the county line is Berea, so celebrated for its grindstones. This rock has its line of northern outcrop across the county from east to west, a few miles back from the Lake. It affords excellent building material. Some of the finest structures in Cleveland and of Canadian cities are from the quarries of Amherst in this county.

Along the Lake shore, and for three or four miles back, the underlying rock is shale, the upper layers of which are soft and friable, the lower more compact, but containing seams and fissures from which inflammable gas sometimes escapes, but no petroleum has been found. The dip of the rocks is toward the southeast, while the general surface of the county declines almost imperceptibly in a northern direction toward the Lake.

The streams running north and south, and the lake ridges running east and west, make the only perceptible variation of the almost uniformly level surface.

The rocks of sandstone and shale are almost everywhere covered by drift, and this in some places by lake deposits in addition. The lowest



Corrections on the Map.—The railroad from Rawsonville to Oberlin is abandoned, and the railroad from Elyria is now direct to Oberlin. The railroad represented near the lake shore, on the north of the map, was never put in operation.

layer of the drift is a blue clay, containing pebbles of syenite, limestone and shale. Its thickness varies from less than ten to upwards of twenty feet. Above the blue is a layer of yellow clay, containing pebbles and fragments of the same rocks. This stratum forms the subsoil of the greater part of the county. Boulders of primitive rocks, mainly syenite, are found in all parts of the county, except where they are covered by the more recent lake deposits. They are sometimes intermingled with the drift, but are more frequently on the surface, and in some places have had the effect of preventing the surface from being washed away.

The lake deposits are found at all points along the immediate shore and on ridges running nearly parallel with the shore, and continues with more or less regularity the whole length of the lake, and at distances from it varying from a mile to six or eight miles. The lowest of these deposits is an extremely fine blue sand in thin layers, upon this a coarse gray sand and upon the surface sand of all degrees of fineness; from fine sand to coarse gravel. These ridges are usually elevated a few feet only above the land to the south of them, but on the north side the land declines rapidly for some rods, so that on this side the ridge presents an elevation of ten and sometimes of twenty feet; the breadth of the ridges is usually from a quarter to half a mile, though it is sometimes more.

Soil.—The soil of all the southern towns of the county is formed upon or out of the yellow clay drift, though occasionally the clay is substituted or overlaid by sand or gravel. This clay soil contains a large percentage of sand and is mixed with carbonate of lime from the imperfectly disintegrated limestone rock diffused through it in small particles. The timber upon this land, where dry, was beech, hard maple, white ash, etc.; and, where wet, elm, hickory, black ash, basswood, soft maple, etc. When brought into cultivation and properly drained this clayey soil produces good wheat, oats and potatoes, and most excellent pasture and meadow. Between the North Ridge and the lake, the subsoil is apparently the blue drift; it contains much less sand but still more carbonate of lime. The timber upon it was white and black oak, elm, hickory, black ash, soft maple, etc. It is more tenacious than the yellow clay, and more benefitted by thorough exposure to the action of frost; it produces the same crops as the yellow clay, but often heavier. It is upon land of this description that the grape has recently been cultivated so successfully along the Lake Shore.

There are three principal lake ridges which are nearly parallel and elevated from eighty to upwards of one hundred feet above the lake. They are found in the townships of Avon, Sheffield, Amherst, Brownhelm, Ridgeville, Eaton, Carlisle, Elyria and Henrietta. The soil on the ridges is formed of lake deposits, is sand or gravel, and contains but little lime. The timber was chestnut, white wood or poplar (*Liriodendron tulipefera*); butternut, hard maple, black cherry, beech, white ash, and

white and black oak. In cultivation these ridges have produced excellent corn, clover, potatoes, wheat and oats, though of the two latter crops the yield is rarely as heavy as is sometimes grown upon more clayey land. These sandy ridges afford the most desirable locations for dwellings and farm buildings, and also for orchards and gardens, and the best natural roads, besides the usual advantages of a sandy soil such as early tillage, early crops, and little hindrance or damage from rain.

Marsh or swampy lands are found in the townships of Eaton, Ridgeville, Avon, Elyria, Carlisle, Henrietta, Russia, Camden, Brighton and Penfield. These lands are covered with small deciduous trees or low bushes such as huckleberries, and, in the absence of these, carices and other aquatic plants, and occasionally cranberries. When well drained marsh lands produce for a time good crops of corn or potatoes but for the want of silicates the stalks of corn soon lack strength and the products are limited to root crops. Where leached ashes, lime or plaster are freely applied the productiveness of swampy land is increased for long periods. The rapidity with which black marshy soils radiate heat so diminishes their temperature, together with their general low and sheltered situations, that their crops are subjected to the action of the late frosts in the spring and of early frosts in the fall.

The best lands in the county are found on the bottoms of the rivers, already mentioned, or on some of the creeks which run into them. Columbia, Brownhelm, Wellington, Pittsfield, Penfield, La Grange, Grafton, Carlisle, Elyria, Sheffield and Black River townships have lands of this description. The timber found growing upon bottom lands was principally elm, sycamore and buckeye, on the river banks, with some black walnut, white ash, white oak and basswood, and occasionally black cherry, and in some places crab, plum, thorn and grape vines in impenetrable thickets. In cultivation the bottoms have produced the best of all kinds of crops; the soil is dry and sandy and the tillage easy, but the durability and fertility of these soils is their most valuable characteristic. Lands that have been tilled from the first settlement of the county still produce more than average crops, even when no manure or other fertilizers have been applied. The relative proportions of these different soils in the county can be stated only approximatively. The clay soil greatly predominates, being, perhaps, not less than eighty per cent. — lake ridges, river bottoms and marsh, in about equal proportions, make up the balance.

Climate.—This has an influence on all farming operations not less decisive than the quality of the soil. The average annual rain fall in Lorain county is about 36 inches, and this is pretty equally distributed through the four seasons, though in some years more falls in spring and summer than in autumn and winter. The range in ten years has been from less than 30 to 48 inches. The thermal range is about 105° of

Fahrenheit, or from 10° below zero to 95 above. In exceptional years the extremes of heat and cold have been even greater. Observations of the hygrometric condition of the atmosphere do not show a greater humidity in the vicinity of Lake Erie than in the central parts of the State. The prevailing winds are from south-west and west to north-west. From these quarters come almost all the rain and snow, though occasionally severe rain and snow storms come from the north-east; from the east or south-east there is little wind or rain. On the Lake Shore there is a land and lake breeze at regular hours of the day for most of the year, the direction of the breeze being determined, of course, by the relative temperature of the land and water.

The temperature of the water of the lake has a marked influence on the atmosphere for some miles from the shore. In the spring, while ice remains on the lake, the general temperature is lowered and vegetation, and especially fruit buds, are retarded, but so soon as the ice leaves the lake the water begins at once to grow warmer and late frosts are prevented. In the fall the water is warm and diffuses its heat for some distance over the land, and has the effect to prevent early frosts, greatly to the advantage of the corn and grape crops. Peaches are frequently abundant on the Lake Shore when none are to be found a few miles inland. Some seasons this protecting influence is felt only on the immediate shore; sometimes it reaches to the North Ridge and in other years it extends inland for ten or fifteen miles. The favorable influence of the lake has made the south shore of Lake Erie the best fruit region in Ohio, and hence lands that ten years since were little esteemed for general farming purposes on account of their poor and clayey soil have now become quite valuable for the culture of nearly all kinds of fruit, and particularly of grapes.

Farms and Farming.—The average size of farms in Lorain county is less than one hundred acres. These small farms, or perhaps the original taste of the settlers, have led to the adoption of a miscellaneous agriculture rather than a dependance on one or two principal staples. Almost every farmer endeavors to raise whatever is needed by his own family, and some surplus of every product for market; of what that surplus shall mainly consist depends on the situation and soil of each farm, the taste of the occupant, or the amount of his disposable cash capital. The general impression seems to be that by pursuing a miscellaneous system and raising a little of every thing, the labor of the farmer's family is better distributed over the entire year, and for each one, old or young, male or female, some profitable employment is found. While this is true in the main, the peculiar adaptation of this portion of the State to dairy purposes has given to this form of industry a preeminence, and secured for Lorain, in common with other counties of the Western Reserve, the appellation of "Cheesedom."

Dairy Products.—In Lorain county cheese is made both in factories and in private dairies. Factory cheese is more uniform in size and quality than the domestic, and though not always actually superior, it usually brings a better price in the market. The expense of putting a cheese factory in operation depends on three items—the site, the buildings and the apparatus. A site well adapted to the purpose should be central and accessible and on a back or side hill, from which a good spring of cold water issues at such an elevation as to allow it to be used for cooling the milk without the labor and expense of pumping. Such a site is almost indispensable, though in a level country like Lorain, where good springs are few, it is only occasionally to be found. The buildings consist of a factory proper, where the cheese is made, and another building or room for drying or storing the cheese. The cost of suitable structures may vary from \$300 to \$500 to each hundred cows. Apparatus, including cans for carrying the milk, from twenty to thirty per cent. less. Factories sometimes purchase the new milk from farmers at about twelve cents a gallon (1866), or the factories make the cheese for the farmers, charging about two cents a pound for their trouble when the cheese is delivered. The manufacture of cheese in factories is found highly remunerative not only to the factory, but to the farmer. The milk of a good cow sold at twelve cents a gallon should amount to sixty dollars in a season, or if cheese be sold at the prices of 1865, the gross proceeds from a whole dairy has averaged \$100 to each cow. On the clayey lands of Lorain county which would not produce grain crops without too much expense, and being rapidly exhausted of their fertility, it is found that a farm of one hundred acres will keep twenty-five cows summer and winter, or, deducting what is usually in timber, orchard and garden, and what is consumed by the team, &c., one cow is kept on about three acres. From twenty-five cows, fifteen hundred dollars worth of cheese may be sold in a season with almost no outlay for labor. This is a much better return than can be realized from grain raising or wool growing on such soils. The process of making cheese in the factories of Lorain does not differ in any important particular from that described by S. L. Goodale, Esq., Secretary of the Maine State Board of Agriculture, in the Report of the Commissioner of Agriculture for 1863.

The cheese of private dairies differs with the skill, taste and circumstances of the maker. In dairies of twenty cows and upwards the dairyman can afford to supply himself with the best apparatus, and with proper skill can make a first rate article. Few dairymen, however, will be as painstaking and thorough or as well informed as the managers of factories, while many will be as careless and slovenly about cheese-making as about all other farming operations. Cheese-making is a very advantageous form of industry for poor farmers in new countries especially,

in that it requires very little purchased apparatus. A cauldron kettle, which also serves many other purposes, serves as a cheese vat, and a beam ~~stop~~ ^{press} can be made by the farmer himself in a few hours. In this respect it has an advantage over butter-making, for which a good cool, clean, quiet room, where the cream may rise, is indispensable.

The varieties or styles of cheese made in the county are governed by the state of the market, Cheddar, English Dairy, besides that form recognized as Western Reserve Factory may all be seen. In the production of cheese, Lorain is the sixth county in the State. The quantity made in 1865 was nearly a million of pounds; the quantity made in 1866 was much larger, but of that no returns have been obtained. At present Cincinnati, St. Louis and New Orleans are the best markets, although some is sold in New York.

Butter.—For many years Lorain has sent butter of the best quality to Southern, Western and Eastern markets. In the production of this article, only a single county in the State, viz., Ashtabula, is in advance of Lorain, which makes more than three-fourths of a million of pounds annually. Butter is seldom made in large dairies, which are generally supposed to make better profits from cheese; but such of the farmers of the county as have adopted a miscellaneous instead of an exclusively dairy husbandry, and raises grain, stock, wool, fruit, &c., find that the milk of a few cows may be employed for butter-making with, perhaps, less trouble than the same can be converted into cheese, unless in the immediate vicinity of a cheese factory. Another consideration, however, doubtless, controls the matter in a majority of cases, viz., that as fine a sample of butter can be made from a single cow or a few cows as from a large number, which is not true in regard to cheese. In the process of butter-making in Lorain county there is little variety, and perhaps no uniformity. The milk is usually strained into tin pans holding about six quarts, and set in a cool, clean place for twelve or twenty-four hours, for the cream to rise. The churns used are of every imaginable pattern and patent—the farmer, or his wife, or the children, or the dog furnishing the power—in a few instances only is water or wind power used. The multiplicity, and we may therefore infer, the unsatisfactory character of the churns used, appears to depend on the fact that churning is probably considered by manufacturers of churns as purely a mechanical operation, instead of what it is, an operation partly mechanical and partly chemical. Everything, therefore, that ingenuity can devise is done to break or tear to pieces the casein envelopes that hold the oil globules of the cream in isolation, while little care has been taken to introduce a sufficient supply of atmospheric air to regulate and acidify the cream in the process. The Eureka churn, manufactured at Elyria, Lorain county, by Messrs. Landon, Gallup & Co., although not entirely new in principle, is likely to

become, when its action is properly understood, the most popular implement of the kind in the country. Butter for immediate use is seldom washed by the best butter-makers, but when it is intended for winter use the butter-milk is carefully washed as well as worked out, and an additional quantity of salt added to prevent the remaining casein from becoming rancid.

The gross proceeds of a good cow, devoted to butter-making, will be less than the proceeds of an equally good cow devoted to cheese-making. A cow may give from 300 to 600 gallons of milk in a season, from which may be made from 100 to 200 pounds of butter; but from many cows as much as four gallons of milk will be required to furnish cream for a pound of butter.

No particular breed of cattle is specially sought by the dairymen of Lorain county, the general impression being that "common stock" will frequently furnish better milkers, in proportion to their cost, than either Shorthorn, Hereford or Devon, which are the only imported cattle in the county. This opinion can only be correct where price is specially considered, for the cows which took the first premiums at the State Fairs of 1864 and 1865, for quantity of milk and butter, were thoroughbred or high grade Shorthorns belonging to Mr. R. Baker, of this county, and such are by no means exceptional cases.

Wheat.—Previous to the advent of the wheat midge (*Cecidomyia tritici*) in 1853 or 1854, excellent crops of wheat had been grown in this county, and the only insect enemy of the crop heretofore observed was the Hessian fly (*Cecidomyia destructor*), which was scarcely known in some towns. Since the appearance of the midge, the culture of the finer varieties of white wheat has been almost abandoned, and the earlier and hardier varieties, such as Mediterranean, substituted in the place. In addition to the midge, the uncertainty of a snowy covering during our exceedingly variable winters has contributed to discourage the culture of this indispensable grain. To avoid the severity and uncertainty of the winter, spring wheat is now grown more than formerly, but this crop is not uniformly satisfactory, for if sown too early it is liable to be attacked by the midge, and if sown too late it is dried up by the excessive heat or injured by rust. From assessors' returns it would appear that only 5,764 acres of wheat were grown in 1865, and that the crop was little more than 22,000 bushels. We do not believe these returns are near the truth in either particular. When the county was first settled wheat was usually the first crop upon newly cleared lands, and from fifteen to twenty bushels to the acre was not an unusual crop; lands longer cleared were generally prepared for wheat by summer-fallowing. When this was practiced, the wheat sown early and the water kept off, the crop was reasonably certain until the appearance of the midge; since that time less care has been

bestowed upon this crop, and summer-fallowing is less frequently practiced. Grass lands are now often broken up in the spring, or if the soil be clay, late in the fall, for corn. This is planted at full distances in the direction of the furrows, and well cultivated during the summer without breaking the sod. Wheat is sown early in the fall between the rows before the corn is harvested, and in the succeeding spring clover and grass seed is sown among the wheat. This method takes but two grain crops from the land before it is again seeded with timothy and clover. While these continue the land remains in pasture or meadow; but when they give place to June grass and other inferior herbage the same course is repeated. This plan is well adapted to a dairy country, for two grain crops occupy but fifteen months, and secures a better setting of grass than before. A different plan is sometimes adopted. The turf is plowed under in the spring for corn; this crop is followed the next spring by oats, and the oats are followed by wheat, among which clover and grass seed are sown. This practice is only adapted to lands of decidedly good quality.

Corn.—Lorain is not a corn growing county, although the river bottoms and some of the uplands are well adapted to this grain, and corn crops have sometimes been grown in the county that would compare with the best crops grown in the State. There is no distillery in the county, and but little pork is fattened for export; most of the corn raised is consumed for human food and by animals on the farm.

The culture of corn in Lorain presents no peculiar feature other than the frequency with which grass lands are broken up for this crop, and the practice of ridging instead of furrowing before planting—the clayey character of much of the soil and the flatness of the surface have led to the former, and the frequency of cold spring rains in the vicinity of the lake, have led to the latter practice. The quantity of land planted with corn in Lorain was 15,000 acres in 1865, and the crop 500,000 bushels. The varieties cultivated are white and yellow gourdseed, and a smaller and earlier variety of yellow corn, sometimes called Hackberry. Thirty years since white flint corn was extensively cultivated and sold at a good price to be hulled for the trappers of the Hudson's Bay Company; this was an early and good variety, but generally considered too hard and flinty for stock. The time for planting corn in the northern part of the State, is as soon as possible after the 10th of May, though it is sometimes delayed by the cold or rains as late as the first of June or even later. It is customary and generally necessary to work the crop twice in the season; hoeing by hand is still practiced after the cultivator, and it seems to be admitted that corn requires more and better tillage to secure a crop than in the southern portion of the State. It is usually cut and shocked while the stalks are a little green, and but rarely fed upon the stalks.

Barley.—Only to a limited extent is barley cultivated in the county, although fair remunerative crops have been obtained, and the market of Cleveland takes all that is furnished. It has been sown on all kinds of soil. On sandy land the straw is short and the crop usually light, but the grain is of the best quality; on good clayey soil the straw is longer and stronger and the yield heavier; on marsh land, when it is thoroughly drained and the barley sown late enough to escape late frosts, the crop is sometimes very large. Upon all rich lands, however, barley is liable to be injured by a parasitic fungus (*uredo segetum*) or smut. It is usually sown, except marshy soils, as early in the spring as the season will permit. If the ground has been prepared in the fall, it may be sown before the plow can be put in action; a week or two of snow after the sowing, rarely does any harm. Only the spring varieties are grown. Skinless barley has been grown in a few instances, but it has not come into general cultivation.

Rye.—This crop is but little grown in Lorain. Formerly the flour was mixed with corn meal for bread, but the taste for rye and Indian was almost confined to the original settlers, and has not been transmitted to their children. A little is grown and sold to distilleries in neighboring counties, but the principle inducement to the growth of rye is the convenience of having the straw to tie up corn stalks and other uses. It is sometimes sown very early, so as to make a good growth before winter, so that in early spring it may be used for the pasture of ewes and lambs, a practice which injures the rye but little and greatly benefits the sheep, as this is a good preparation if the land is required for a spring crop.

Oats.—It is supposed by many that oats grow better in the northern parts of the State than in the southern. However this may be, it is certain that they grow much better on the northern side of Lake Erie than on the southern. The difficulty of growing heavy oats in this climate is the comparative shortness of the season and the rapidity with which the extreme summer's heat comes on. When the hot weather comes, if only moderately forward, they are ripened almost at once, although the kernel is not full; if backward, they are affected by rust and greatly injured. If sown very early, even though the sowing is followed by frost and snow so that sufficient time is secured for a good growth and gradual ripening, the grain is much heavier and there are more bushels to the acre. The varieties sown are known as the Common, the Poland, and the Tartarian or one side oat. The Polish oat produces the largest crop, and in Lorain has weighed nearly 40 lbs. to the bushel; but this variety has a greater tendency to waste in harvesting than some others. The Tartarian oat probably produces better than any other on poor and clayey land. The climate of Ohio is manifestly not well adapted to the growth of this cereal, and hence the tendency of all the better varieties to degenerate until, in a

few years, they frequently fall below the legal standard of 32 lbs. to the bushel.

Buckwheat.—Buckwheat cakes are still popular in Lorain, and the grain from which they are made is grown to supply this demand. For a crop, the buckwheat is sown on good warm soil in the latter part of June, though sometimes a fair crop is obtained if sown after barley has been harvested. But the principal use made of this crop is as a fertilizer, sown thickly on old land which is intended for wheat, and so early as to be in full blossom by the first of September. It is then turned under carefully, and the wheat sown at once upon the inverted crop, which, by its fermentation and subsequent decomposition, affords the nutriment required by the wheat plant.

Sorghum.—The manufacture of sorghum syrup was introduced in 1859, and from that time to the present it appears to have gained rather than lost in public estimation. By the experience gained, and the improved methods adopted, the quality of the syrup has been improved, and by continued use, people have become accustomed to its peculiar flavor. A very important point in regard to the time of cutting the cane has been established by experience. At first there was a disposition to cut the cane too early, before the juice had become fully saccharine. Afterwards the tendency was in an opposite direction, and the cane was allowed to stand until the seed was nearly or fully ripe; but the latter plan proved worse than the first, for the ripening of the seed was at the expense of the sugar, which was being changed into starch, to be deposited in the seed, to nourish the future plant. Only for the last year or two have farmers learned to cut the cane before the seed hardens, so as to secure the syrup before the conversion of saccharine matter into starch. The process of manufacture throughout the county is nearly the same. The cane is crushed in iron mills; the juice is caught in a barrel, in the bottom of which have been placed pieces of unburned or partially burned limestone; upon the stone a quantity of straw is placed, to act as a strainer, and some place a layer of clean loose wool under the straw. If the straw is renewed from time to time, and the wool washed clean two or three times a day, the straining is more perfect than if the juice had been passed through flannel. The limestones are placed in the bottom of the barrel to neutralize free acids, and to facilitate the escape of the juice from the hole or tap near the bottom of the barrel, through which it runs into the evaporator or other receptacle. Pans of all forms have been used. Probably any of them, when well managed, will answer the purpose, for practical skill on the part of the manufacturer appears to be more important than perfection of machinery.

Several varieties of cane have been cultivated in the county, but it seems to be a general conclusion that the Chinese cane which was first

introduced is still the best for syrup. Thus far few have attempted to make sugar, and special arrangements for crystalizing, or centrifugal dryers, for separating the syrup from the crystals, have not been introduced. The amount of good syrup made from an acre should not be less than 200 or 250 gallons, worth from 50 to 60 cents a gallon. After paying 15 or 20 cents a gallon for the manufacture, there is still a handsome remuneration to the farmer, for his labor and the use of his land. It was fortunate for the lovers of sweet dishes that the sorghum plant was introduced and successfully cultivated before the war of the rebellion had interrupted the industries of the South, or cut off commercial intercourse with the sugar-growing States.

Potatoes.—This is an important crop in Lorain, the city of Cleveland affording a ready market for immense quantities. The advent of the potato rot not only affected the profits of the cultivator, but wrought many other changes. Some of the most delicate and desirable varieties for the table, such as the Neshannocks, have been partially abandoned for coarser and hardier varieties, like the New Jersey Peach Blow. Another consequence of the rot has been smaller crops, from withholding manure, which was formerly thought almost indispensable; but now it is so well understood that the rot is most destructive in soils filled with organic matter, that the use of manure is almost abandoned. No remedy has yet been discovered for this malady, but since its nature and modes of attack are better known, its ravages may in the main be avoided. That it is caused by a parasitic fungus is now generally understood, and that it rarely attacks the potato before the fall rains begin; that it may be early detected by the presence of brown or dead spots on the leaves and stems, and afterwards by little feathery spots of white mould upon the tuber, are also known. If the crop had been dug before these appearances, it would be entirely sound, or if dug when these signs first present themselves, and made entirely dry, it may be mostly saved, but if left until the leaves and stems are killed, and the mould is present on most of the potatoes, the crop is lost, and not worth digging, unless for immediate feeding to hogs or other stock, the starch remaining unchanged in any part of the potato that continues sound, and the decayed portions have no poisonous quality.

Potatoes grown in Lorain are probably as good as can be found in any part of the State, and fields of 10 or 20 acres, or even larger, may sometimes be seen in those parts of the county nearest Cleveland. The soil best adapted to the potato differs with the season, and somewhat with the variety. Marshes that have been thoroughly drained, and of which the soil is wholly black vegetable matter, often bear fine crops of potatoes, with easy tillage and digging, though perhaps they are not always of first rate quality. In wet seasons potatoes are best when grown on

sandy soil; in dry seasons they are perhaps best on turf newly broken up, and where the subsoil is clay. In general, the largest crop may be obtained by breaking up a good piece of turf and planting upon it. The mode of cultivation is various. Some continue the primitive modes of planting and hoeing by hand, and digging with the hoe or fork. Those who raise many, usually drop in furrows made by the plow; use a plow for killing the weeds and hilling the potatoes, and finally take them up either with a shovel plow or with a potato plow, which has straps of iron instead of a mold-board, between which the soil falls back into the furrow, while the potatoes are all carried to the surface. It is so easy to obtain seedling potatoes that new varieties are continually being introduced, in some instances varieties from the eastern States, from England and from Germany may all be found in the same garden. The Neshannock or Mercer is perhaps the only variety that has retained its popularity for more than a generation, but even that, in consequence of the rot, is in danger of being abandoned.

Sweet Potatoes.—These esculents were not grown in Lorain until about 1850, since that time they have come to have a place in almost every garden. Two varieties only are common—the Bermudas, a red kind, very early and very productive, but often rather poor, besides being more subject to rot if left a little too long in the ground in the fall; and the Nansemonds, a yellow kind, not so early but in a dry season productive and very good.

Turnips.—These are grown only to a limited extent as a field crop; but the early varieties sown late, and the late varieties sown early, are sometimes seen. Valuable as this root is understood to be for cattle, and especially for sheep, its culture has not received much attention, and it does not enter into our system of husbandry or rotation as it does on the other side of the lake, in Canada or in England. This, perhaps, depends in part on the clayey character of our soil, but still more on the excellence and reliability of the corn crop, which, like money, “answereth all things.” Considering, however, the smallness of the corn crop on many farms in this county, it is probable that ruta-bagas, properly cultivated, would afford more food for stock, and with less labor, and therefore prove more profitable.

Cabbages are not grown in Lorain as a field crop, though generally regarded, and especially by our German neighbors, as an indispensable garden vegetable.

Carrots and Parsnips are occasionally seen occupying some corner of a field, but neither are much cultivated either for stock or market purposes.

Madder.—Some years since a thorough experiment of the culture of madder was made in Lorain; but on account of the length of time required for maturing the roots and the low price then paid for the product, it was found to be comparatively unprofitable, and therefore abandoned.

A full account of this experiment appeared in the reports of the Patent Office, by Mr. Swift, the gentleman to whose energy and enterprise we are indebted for the trial.

Peppermint has also had its day in Lorain. Many meadows were plowed and planted with this herb. At the proper time the crop was collected and distilled and oil of peppermint became an article of commerce. At present this plant is no longer grown among us for such purposes, which is sufficient evidence that ultimately it was not found profitable.

Hops.—For many years hops have been grown in this county in a few localities. It is supposed that the climate of this region is well suited to this plant, and hence with the inducements afforded by present prices, it is probable that the cultivation of hops will steadily increase from year to year.

Flax.—This was once almost as indispensable as any other product of the farm; but the days of the linen wheel were long since numbered, and now but little attention is paid to this crop. Unless the fibre can be put to new uses or manufactured by new methods, it is not probable that the culture of flax will be renewed on our clayey soils.

Tobacco has never been grown extensively in this county, and yet small patches and even fields are occasionally seen. If its growth were never more profitable to the farmer than its use to the consumer, there would be very little inducement to its culture.

Pastures.—More than half the improved lands in the county are pasture. A clayey subsoil overlaid by a good amount of vegetable matter, appears especially adapted to grass. The cultivated grasses usually sown are timothy, red top and orchard grass, with red and white clover. But either from mixture of the seed sown or because other grasses are indigenous and better adapted to the soil, the varieties actually to be found in any pasture greatly exceeds the above. But little had been done to improve our pastures; leached ashes, plaster, barn-yard manure and the blue drift clay have sometimes been used as a top-dressing—the latter, however, only on the sandy ridges. All of these it is presumed have produced satisfactory results in the comparatively few instances where they have been employed, but it is somewhat surprising that in a county which depends so much upon grass so little should be done to improve or sustain grass lands. Like Indian hunting grounds, grass lands are expected to give without return whatever man can take from them. By this course they will gradually become impoverished, and then some new system of industry must be inaugurated.

Meadows.—By the last vol. of Ohio Ag. Rep. it appears that more hay is cut in Lorain than in any other county in the State. Almost every part of the county will bear good grass, and afford a good crop if left for hay. It has been customary to seed down for meadow with nothing but

timothy and red clover, other grasses are expected to "come in," which they often do, to the annoyance of the farmer, particularly is this true of the *Poas*, as *P. annua*, *P. trivialis*, and *P. pratensis*, which latter is here known as June grass, but which in reality is the same as the celebrated blue grass of Kentucky, but dwarfed in this region by climate or by the insufficiency of lime in our soils. Sowing of red clover, with timothy, is almost universal, and yet the practice is open to the objection that the timothy is always too late to be in season with the clover. This objection cannot be urged against orchard grass with clover, for this is ready for the mower quite as soon as the clover, and when cut early it makes a good hay, but when too ripe it is inferior to timothy. A practice has been adopted by some which seems to be worthy of imitation—that is, to sow orchard grass, with clover, for early cutting, timothy for cutting a few days later, and red top on cooler and wetter soils for cutting late. On warm sandy soils the orchard grass and clover are ready to cut in June, while in low moist lands the red top is still green and fresh in August. By having meadows of each of these grasses the whole hay crop may be cut exactly in season, although the haying be considerably prolonged, while, if timothy alone is relied on, it must be cut all at once or some will be too young and some too old to make the best hay.

Hay is usually secured in barns, there being less stacked out in Lorain than in almost any other part of the State. This is probably due to the fact that all our farms are small and one or two good barns are sufficient to secure both grain and hay. In passing through some portions of the county, travellers may occasionally see hay stacks that will give evidence that if stacking is not much practiced, it is nevertheless well understood. It will be admitted that our English farmers make the neatest and securerest stacks of hay and grain. Their method of stacking the former is so uniform as to be easily described. In the first place, logs or rails or brush is laid down sufficient to keep the hay entirely from the ground, upon these straw, weeds or other refuse is placed to give still further protection. To place the hay the stacker moves gradually backward near the edge of the stack, laying continually a good course before him. In this way he passes slowly round and round until the stack is finished, being all the time careful to keep the middle full. The stacker goes round in that direction, which brings his upper hand on the fork to the outside of the stack. Until two-thirds of the hay is on the stack, it is gradually widened, while with the remaining third it is regularly narrowed to the top. When the stack is finished, it is customary to pull off all that hangs over the bottom of wood or straw to the ground and to rake down the roof smoothly and thoroughly. The hay in such a stack, provided it be properly finished before rain comes upon it, will keep quite as good and fresh as in a barn. But in consequence of the risks of weather, and the

trouble of building and topping a stack well, and also because little skill is required to move away the hay in a barn, the latter is always preferred.

Cutting hay for sale has not been extensively practiced in this county, the conviction that it impoverishes the soil unless the fertility be maintained by frequent top dressings, has doubtless had an influence to prevent such a traffic. Where the price and the facility for sending to market are good, and where the necessary fertilizers can readily and cheaply be obtained, there need be no more hesitation in selling hay than any other product of the farm. It is found in Lorain as elsewhere, that after a series of years meadows, "run out," as the expression is, the timothy, and red clover, and other desirable grasses, give place to comparatively unproductive varieties. One remedy is a thorough top dressing of good manure in the spring, and when it is thoroughly harrowed about, to sow upon it timothy or clover, or whatever grass is desired. The usual method, however, is to break up, and after two or three grain crops, and the use of manure or other fertilizers to seed again with better grasses.

Forage crops, other than grass, are sometimes grown, millet to a small extent, Hungarian grass, more extensively, and sometimes corn thick sown late in the season. Any of these prove an invaluable resource, when the danger of a short crop of hay is apparent, or where a farmer has team and labor in plenty, he can certainly obtain winter forage from these crops from less surface than from common meadow.

Lucerne (Medicago Sativa).—Many years since, a small package of La Lucerne (the Alfalfa of the Spaniards), were sent about the country from the Patent Office; but it has not come into general favor, still its hardiness in this climate has been sufficiently demonstrated—the writer has some growing which was sown some fifteen years since. It has several mowings annually, and is very well relished by stock. In some of the Southern States this plant may prove of great value for cattle and horses as it has long been all over Southern Europe.

Horses.—Lorain cannot lay claim to any valuable breed of horses, although the horses of the county are comparatively good. Farms are small and most farmers keep but a single team, which must plow and harrow, reap and mow, thrash and saw wood, go to market or to meeting, and in short do all that a horse can be made to do. Consequently almost all the horses in the county are "horses of all work," no breed of any special adaptation is to be found among us, and there is not now, and probably never has been, a thoroughbred horse standing for service in the county. Good Morgan horses have sometimes been kept, and occasionally a good draft horse; but of neither of these has there been a breed, and it is not probable there will be for years to come. If horses are fit to do everything tolerably, it can hardly be expected they will do any one thing absolutely well.

A single fact in the management of young horses is perhaps worthy of mention. In the castration of colts a safer and more humane method has sometimes been adopted here, than that which generally prevails. The colt is thrown and the feet secured in the usual way and rolled upon his left side, if the operator be ~~left~~^{right}-handed; the scrotum is opened as usual, but instead of applying clamps of wood to the cord, the testicle is seized firmly by the hand with a sudden jerk, torn out in the same manner as in the castration of young bulls. If the cord were cut off the animal would probably bleed to death, but a torn or lacerated artery will not bleed; hence, the tearing out is safe, while cutting involves the necessity of securing the artery by ligature or other contrivance. The usual precautions to prevent the colt from galloping about are taken, and there is nothing more to be done, and the danger is even less than by the old method.

Mules.—A few only have been raised or pastured in the county, and very few mule teams are kept; the people are partial to horses, and can't see that the mule is any great improvement.

Cattle.—The number of cattle kept in the county is something over 20,000, of these the major part are what are called common stock. Durhams, Herefords, Devons and their grades are also seen on many farms. Durhams have been brought into the county from Kentucky, Southern Ohio and from Canada, and appear to have grown in public estimation both for beef and dairy purposes. In regard to the latter use, however, it is evident there is great variation among the Shorthorns of Kentucky and Southern Ohio—some families being the best of milkers, while others are quite indifferent; the number of short-horn grades is steadily increasing, even where they are kept exclusively for the dairy.

The Herefords of Messrs. Aston, Humphrey and Cross, which have often been exhibited at the State Fairs, of this and other States, are all owned in Lorain county. Their excellent quality as beef cattle is everywhere admitted; but they are not increasing rapidly, owing perhaps to the prices demanded for them by their present proprietors. Devons were formerly kept in the county and highly esteemed for the yoke, at the present time but few of them are left.

Sheep.—But few counties in Ohio have more sheep than Lorain, the number returned to assessors being 164,000, consisting of Merinos and their grades, and Leicesters, Cotswolds and Southdowns. For many years our farmers have endeavored to grow a finer quality of wool, and at the same time to increase the weight of fleece, and the size and hardihood of the animal. In these aims some have had a ~~remarkable~~^{considerable} measure of success, and excellent sheep may be found in the county; but the little difference in the prices of wools has prevented improvers from obtaining the reward to which their enterprise and care were entitled. The recent

war has also had an influence in the same direction. The demand for coarse, and particularly combing wools, for army uses, has greatly disturbed the calculations of the producers of the finest qualities of wool.

Leicester sheep have been kept in the county for more than thirty years, and have spread into several towns. The high prices paid for combing wools during the war has materially increased the demand for this description of sheep. In former times their excellence for mutton was their chief recommendation. Leicester sheep have proved thrifty and hardy in northern Ohio, and on grass alone, without grain, they can usually be kept as fat as it is desirable for breeding stock to be kept. Cotswolds have also been common for several years. Their great weight makes them favorites with the butcher, and their wool, which before the war was called too long and coarse, is now in good demand. They probably require more and better feed than Leicesters, not having the same aptitude to fatten, nor do they come to maturity so early, but when mature and well fed, they reach a heavier weight. For practical purposes, the Leicesters and Cotswolds may be classed together. Taking into account their value for mutton as well as wool, either of these varieties are probably as profitable as those that produce finer wool. Should the demand for combing wools continue or increase, it can be produced in this and other States on the northern border, as cheaply and as good in every respect as it can be produced in Canada, and it can not be good policy to import our combing wools when they may so readily be grown at home.

Swine.—Pork is not one of the principal products of the county, and hence the larger and coarser varieties are seldom kept. For home consumption the smaller breeds, such as Suffolks and Berkshires, are more esteemed. It is, however, true that the Chester Whites are having a season of comparative popularity. Hogs that will profitably consume the refuse of the dairy, the garden, the kitchen and the farm, and get fat without much sound corn, come nearest to filling the requirements of Lorain farmers.

Poultry.—The farm-yard must have its denizens not less than the pasture. Turkeys, black, bronze and white; geese, common, gray and Chinese; ducks, Rouen, Muscovy and Aylesbury, may all be seen. And as for "the cock that crows o' the morn," he may be a Shanghæ, Chittagong, Brahmapootra or Java, Black Spanish, Poland, Dorking, or English or Irish game. That all these are kept in the county, and their several merits and capabilities properly understood, can be proven to whoever has a taste for roast turkey or chicken pie, roast duck or goose, or eggs after all styles, including that curious compound, egg-nog, or who is used to take flights with a gray goose quill, or delights to rest his weary limbs on beds of softest down.

Silkworms.—Lorain has had its era of *morus multicaulis*, with the accompanying visions of heroes and houris clad in silk and satin ; beautiful dreams that contrasted sadly with the waking reality. Unfortunately this form of industry failed to bring fortunes at once to all its enthusiastic devotees, and therefore it was as unwisely abandoned as at the first it had been unwisely begun.

“Of manias we’ve had many,
And some you’ll call to mind,
But the *morus multicaulis*
Leaves all the rest behind.”

If every farmer in the country who has suitable soil, had a few mulberry trees of the best variety that could be grown in the climate, and would feed as many worms as the members of his family could care for properly, the aggregate wealth from this source would be immense. But we must wait until there are fewer opportunities of becoming suddenly rich by gambling speculations, before our people will be satisfied to strive for the moderate though certain gains of patient industry.

Bees.—The busy bee, so noted for a good example of industry and economy is by no means neglected among us. Nowhere can finer fields of white clover be found than in Lorain. Then we have bass-wood trees in abundance, and buckwheat, and all the sources from which the “balm of a thousand flowers” is made. When the Italian bee was first introduced, its appearance was hailed as a great event, and the extinction of the little black bee was at once predicted ; but after many years the darkey proves irrepressible, and is still cherished “for the sweet food she makes,” and dreaded for the little poisoned dagger she is so ready to unsheath on the slightest provocation. Won’t somebody import, directly from Mexico, a colony of stingless bees, so that in the good time coming we may have honey without a sting. Thanks to Langstroth and others, the bee, although still subjected to heavy assessments on account of internal revenue, is no longer consigned by her unchristian plunderers to a doom of fire and brimstone.

Fruits.—Lorain county, and the Western Reserve generally, is an excellent region for fruit, both soil and climate being well adapted for its cultivation, and the inhabitants have an intelligent appreciation of its value, not only as an article of commerce, but for daily home consumption. Through all the lake region apples are excellent and abundant ;—the surplus is barreled and sent east and west, or dried and sent to market in all directions. Cider, and cider vinegar are abundant and good, and form important items in the profits of the orchard. The locations preferred for orchards have a soil dry and loose, either sandy, gravelly or stony ; the lake ridges fill these conditions, and therefore are largely devoted to orchards. The first orchards of the county were entirely of seedlings, and presented the variety and inferiority that might be expected ; but so well fitted were soil and climate to this fruit, that almost all

orchards contained kinds of local reputation, and perhaps worthy of propagation. There seems to be a general desire among farmers to have many varieties rather than to rely on a few which are "best." For early fruit, some of the following may now be found in nearly every orchard: Early Harvest, Sweet Bough, Summer Pearmain, Golden Sweet, Early Strawberry, Summer Queen, Red Astrachan, Lowell, and Drop D'Or. Fall apples found almost everywhere are Fall Pippin, Rambo, Gravenstein, Fall Wine, Myers' Nonpareil, Porter and Pirmate. For winter, Belmont, Baldwin, R. I. Greening, Peck's Pleasant, Red Canada, Jonathan, Wine Sap, Seek-no-further, Esopus Spitzenberg, etc., etc.

It appears to be the experience of all our farmers, who have planted orchards, that trees furnished by nurseries of our own State grow better than those brought from other States, and that our nurserymen know better what trees to recommend for different localities within this State, and are more reliable than the travelling agents of Eastern nurseries.

It is to be regretted that so many orchards in this county, as elsewhere, are so poorly cared for. It is not enough, as some appear to think, to plant an orchard and fence it, and go annually for a crop of fruit. There are trees in the county that have neither been pruned nor manured for thirty years. In favored localities these trees still live and produce fruit, but in situations less favorable they die or gradually produce smaller crops and poorer fruit. The good effects of a liberal dressing of manure and in some cases of ashes is nowhere so apparent as when applied to a poor, scrubby starved orchard.

Peaches.—When the county was first settled, peaches were comparatively a certain crop for some miles back from the lake, but owing either to clearing the county of timber or other causes, there is now but a mere border on the lake shore where they are comparatively unfailing. In portions of the county, remote from the shore, in half the years peaches are a failure; still with all this uncertainty, so delicious is this fruit that its culture continues to secure attention, and sometimes the care and patience are rewarded by fine luscious peaches, such as even New Jersey might envy. We need not name the popular favorites, their memory is very sweet, but the more we think of them the more we feel inclined to ask "When shall we meet again."

Pears.—Our first pears were mostly seedlings, among which there is apt to be more of uniformity than among seedling apples, and therefore our first pears were almost uniformly poor. After better varieties were introduced, cultivators were often disappointed through the ravages of the blight; to such an extent has this been true that a few years since, on many farms that had good apple orchards, not a single pear tree was to be found. For some years, however, the blight has not proved so troublesome, and renewed attention has been paid to the introduction and culture of the best varieties, and now at our exhibitions may be seen

the Bartlett and Seckel, the Bloodgood, Tyson, Belle Lucrative, Stevens' Genessee, Lawrence, Sheldon, Winter ~~Reds~~ ^{Reds}, and others grown on standards, and the Dutchess, Glout Morceau, Flemish Beauty, Easter Buerre, and Buerre Diel on the Quince. The preference at present appears to be decidedly in favor of standard trees, and we trust that ere long good, vigorous, standard pear trees will be found in every orchard. Indeed, an orchard without Bartletts and Seckels should be considered an offence against the good goddess Pomona and its owner, after fair warning held liable to be punished by hanging on a sour apple tree.

Strawberries.—This delicious little fruit is as worthy of honorable mention as it is of general cultivation. On the sandy and gravelly lake ridges it grows finely and bears abundantly, and what is wonderful to relate is practically without insect enemies. The crop rarely fails unless the rains are so heavy or violent, when it is in flower, as to wash away the pollen before fertilization is complete. The practice of winter covering the plants with straw, ~~ever~~ ^{once} considered indispensable, now seems to be abandoned, and in its place mulching with spent tan bark is sometimes adopted: an excellent plan, for besides supplying nutriment to the plants it retains the moisture of the soil and prolongs the bearing season and keeps the berries from the sand. The varieties cultivated vary from time to time, but Early Scarlet, Hovey's Seedling, Wilson's Albany, Russell's Prolific, Hooker's Seedling, &c., are most common. Strawberries are not much grown for market in Lorain, there being no city within our borders, but every man who has land grows them for himself and family, and if his own cows supply the milk or cream to go with them "so much the better."

Raspberries, except two or three common varieties, are not so generally cultivated as strawberries, the better varieties all requiring protection of some kind during the winter, and this the farmer, busy in securing more important crops, often neglects. The inducement to the cultivation of raspberries is not alone in the delicacy of their taste but also in the fact that they come in season after strawberries, and when no other fruit of equal value is ready for the table.

Blackberries.—Only of late have blackberries been admitted into the good society of the garden, partly because they were "so common," but perhaps more on account of the rambling and saucy behaviour of the bushes. Since the introduction of the Lawton and other selected varieties, the blackberry is found to pay as well for gentlemanly treatment as other fruit-bearing shrubs, and to be equally amenable to garden regulations and boundaries.

Cranberries.—These are found growing wild in the marshes of several towns in the county, and probably because they are so abundant and cheap, their culture so far as known has not been systematically attempted.

Huckleberries.—This is another wild fruit which grows abundantly in the county. Several varieties are found in and around the marshes, some of which appear to be sports or perhaps hybrids. Some of these may, perhaps, be worthy of cultivation. It is not known that efforts in that direction have thus far proved successful.

Grapes.—Recently grape culture has attracted much attention. The excellent quality and high price of grapes grown on the islands, near Sandusky, have induced many enterprising persons to establish vineyards on the main land. Some vineyards planted on the lake shore in 1860 have come into bearing, and have fully answered the most sanguine expectations of their owners. In the towns of Avon, Sheffield, Black River and Brownhelm, which border on the lake, there are already more than 300 acres of vineyard, of which about fifty acres are in bearing. The soil of the lake shore, upon which grapes are now being planted, is everywhere clay drift, lying upon shale only a few feet below the surface. On such soils the growth of the vine is arrested early in the season, and the young wood has time to mature fully before winter, and the grapes are said to mature better, and to be sweeter, and better flavored than such as grow upon sandy soil. At a late meeting of the Grape Growers' Association held in Cleveland, the first premium for Catawbas, the perfection of the cluster and quality of the fruit considered, was awarded to specimens from the township of Avon.

The varieties at present in cultivation on the Lake shore are the Catawba, Delaware, Ives, Iona, Virginia and Concord. So far as present experience goes, all the finest and most delicate of our native grapes can be grown to perfection on the south shore of Lake Erie. Whether grapes can be grown as well upon the mainland as upon the islands is to the men of the islands a matter of doubt; with the men of the shore it is an established fact. The fruit, when ripe, is put up in boxes containing 10 lbs. each, and sent all over the country; at present the demand for grapes is so great that wine-making on the mainland has scarcely been attempted. The land on the shore is not only clayey, but flat, so that underdraining is regarded as an imperative necessity; the cost of this improvement is from \$40 to \$50 per acre, at the present high prices paid for labor and for draining tiles. The present price of first-class vineyard land is from \$150 to \$200 an acre.

Labor.—The supply of hands for field labor is seldom deficient in this county, partly because the farms being small and principally devoted to pasture, the farmer and his sons, with the aid of machinery, can perform almost all the labor required. And for many years past there has been a steady immigration of English and Germans, and these new-comers have been glad to work for others until they could obtain homes and farms of their own. The wages paid in the county, as everywhere else,

have risen greatly since the outbreak of the rebellion ; before that time a young Englishman or German used to farm labor could be hired for \$120 to \$150 per annum ; at present a similar hand would demand from \$200 to \$250 for the same time.

Machinery.—But little use can be made of water-power by farmers in this county ; the country is too level and the streams too small and transient ; in fact there are not watermills enough to grind the grain and saw the lumber, the deficiency being supplied by steam-power. But through the aid of modern machinery the farmer avails himself of animal power for almost all purposes. He cuts, rakes and unloads hay, cuts and threshes his grain, shells his corn, and saws his wood by the aid of his team.

It is to be regretted that more use is not made on the farm and elsewhere of the agency of wind : a mighty force which even Yankee ingenuity is not turning to much account. The difficulty appears to be that all our windmills apply the power *immediately* instead of *mediately*, and consequently no work can be done except while the wind is blowing. Windmills might be constructed to work by the aid of the force of gravity, the direct labor of the wind being to wind up weights, as a clock is wound up, at which it could work as constantly or fitfully as usual. The working power would be obtained from the weights being allowed to run down with regularity, and drive the machinery as needed. Something of this kind has already been attempted, and when perfected, the farmer may call to his aid a force that will require no feeding either with oats or fuel, but which, if put on his house, can be made available at a moment's notice, to churn the butter, wash the clothes, saw the wood, or rock the cradle, while in the barn it would shell the corn, cut fodder, pump water for stock, and thresh the grain into the bargain.

Plowing.—In Lorain this important operation is usually done by horse teams working two abreast and guided with double lines, the plow being invariably right-handed. Many plows are in common use, but none are more common than the "Curtis," with cast-iron beam : on clayey land, where the soil is heavy, it is thought to be without an equal. Subsoiling has not been extensively practiced, but recently it is coming into use in the preparation of the soil for vine planting.

Draining.—This great improvement has been practiced in the county to a limited extent for more than thirty years. At the foot of the Lake ridges the water makes out sometimes in valuable springs, but oftener in such small quantity as barely to saturate the soil and make it cold and unproductive. In such places underdraining was early adopted. At first timber or stones were used to make the watercourse, but now only tiles are used. The land thus improved is among the best we have. In addition to these springy places, many orchards have been underdrained,

(a tile drain being laid midway between the rows of trees,) and greatly to their benefit, if the land was wet and cold. Since grape growing became a prominent form of industry, draining has received still more attention; thus far the drains are made entirely by human labor; lateral drains, about thirty feet apart, are dug three feet deep, and two inch tiles laid in them. The main drains are deeper and the tiles larger as the outfall requires.

Fertilizers.—So much stock is kept in Lorain that a good supply of barnyard manure is saved on almost every farm. This is sometimes applied to tilled lands, but occasionally spread upon meadows for a top-dressing. Ashes, both leached and unleached, are valued and usually distributed with care. The supply of lime in leached ashes has been found especially valuable to a wheat crop. Plaster of Paris can be obtained in the adjoining county of Erie, where excellent plaster beds are located, but the price has heretofore been too high to bring it into general use. On some of the sandy ridges the blue drift clay has been spread with most excellent effect. For a dozen years or more every crop that has followed such an application has shown a marked improvement. Green crops of buckwheat or clover are occasionally turned under, but this has not yet become a common practice.

Houses.—Houses in this county are mostly of wood, although some are constructed of brick and stone. The style is the same as that which prevails in many parts of New England: a two-story main part, placed end to the road, with one or more wings to the side, the whole painted white, sometimes with green blinds, but oftener without. This plan is well enough, but for the fact that the better part of the house where the rooms are airy and pleasant, is often furnished a little too expensively for common use, and so the careful housewife shuts the family out of it, and of course compels them to live in a little crowded kitchen, often smoky, and steamy and sloppy, where the home graces and amenities do not readily thrive. It is a sad mistake for a man to build a house too nice or to furnish it too elegantly for himself and his family. It is the universal custom in Lorain, as with all Yankee communities, to build near a public road. Getting out and in is evidently considered a matter of great importance. A location near a good road has usually an influence on the surroundings, for homes which are liable to be inspected every hour can scarcely afford to be untidy or without ornamental trees or shrubs and flowers.

Barns in Lorain are not the imposing structures to be found in some of the counties to the south of us. If our German and Yankee populations could learn from each other the gain might be mutual. Yankee barns might be improved as much as the houses of some of our Teutonic neighbors. Sheds for stock are becoming more common, as people

learn that it is cheaper to keep cattle warm by providing them with good shelter, than by feeding them an extra amount of fodder.

Fences.—Almost all the fences in the county are of rails laid up in the old Virginia style. Originally the land was well timbered, chesnut, white and black oak, white and black ash and butternut make the cheapest and best of rails. In another generation, the supply of timber will be spent, and thus far but little has been done to provide for the coming want. The original settlers were not alive to the value of their fine forests, and even now but few persons have any adequate idea of their prospective value where they have been spared from the woodman's axe.

Hedges.—Hedges of osage orange have been tested in the county for fifteen or sixteen years, and in many localities at least with satisfactory results. On sandy soil the orange grows much better than upon clay, and some of the oldest in the county on such soil show no indications of failure, coming up in all points to the old standard of "horse high, hog tight, and bull strong." Where the orange has failed it has generally been on soils too wet or clayey or where the soil about them was not properly cultivated for the first two or three years, or where the trimming was injudicious. The orange seed is bought by the pound; it is soaked four or five days in water blood warm which is changed every day, then sown across narrow beds or drills a foot apart, the seeds being an inch or two asunder in the drill; unless the soil of the bed is quite sandy it is better to procure fine sand to cover the seed an inch in depth than to cover them with a clayey soil. The young plants must be carefully weeded during the summer, and if the seed and management have both been good, 3,000 plants should be raised from a pound of seed. To plant the hedge, it is best, unless the soil is quite sandy, to plow in the fall about three furrows each way from the line of the hedge, making the open furrow as deep as possible. In the spring this is all plowed back and leveled, and the bed for the hedge is made; a line is then stretched and the year old sets cut off nearly to the yellow and planted, the tops level with the ground, about eight inches asunder. The next year, if the growth has been good and the shoots all strong, otherwise wait a year, it is best to cut all down nearly to the ground to secure the putting up of several stems from each root. After this, if intended for a field fence, it may stand four or five years without trimming, and then be platted and layered as thorn hedges are treated in England. This method does not seem quite so handsome for a yard or garden fence as close yearly trimmings, but it makes a more reliable farm fence, such at least seems to be the conclusion that many have reached in this locality.

Hawthorn (*Crataegus oxyacanthus*) the beautiful hedge plant of old England, has also been partially tested. It seems to be especially adapted to clayey soils, such as are not suitable for the orange; on sandy soil it ap-

peared to suffer from the heat and dryness of the climate, losing its leaves early in the season. This does not affect the vigor of the plant, but it detracts from its beauty for an ornamental hedge; in the spring, however, this defect is almost compensated by its earliness, being dressed in beautiful green before any other shrub or tree. On the farm of the writer are several large hawthorns, the seed for which was brought from England nearly forty years ago. They are still in perfect vigor, and annually produce abundance of beautiful and fragrant blossoms and many bushels of berries. From these berries several hedges have been planted in a neighboring county on clayey soil adapted to their growth. They have not had the requisite trimming, but the plants have grown thrifty and do not appear to lack any of the requisites of a perfect hedge plant. On the writer's farm there is also a hawthorn hedge fourteen years old, and although on sandy soil, which is too warm, its general appearance would probably satisfy the most fastidious.

Some experiments (not very satisfactory) have also been made in the county with the native thorn *C. crusgalli*, Cock's spur thorn, and *C. cordata* known as the Washington thorn. The former is believed to be the better of the two, but neither are sufficiently scrubby for a perfect hedge plant. There are several smaller varieties of the native thorn, such as *C. parvifolia*, *C. flava* and *C. appiifolia* which are very spinous and more dwarfed in their habits; but it is not known that either of these has been tested. To determine the best hedge plants for all soils or for any particular soil and locality is of immense importance to the future, far beyond their value for fences. A country full of hedges has abundant protection for little birds, upon which the farmer must always depend to keep his insect enemies in subjection.

Roads.—Lorain county has excellent sandy and gravelly roads in an easterly and westerly direction along the lake ridges, but the roads running north and south on clayey soil are only good sometimes. The railroads intersecting the county are the Cleveland, Columbus and Cincinnati, the Cleveland and Toledo, and the Cleveland and Sandusky roads. Besides roads, the county has water communication with all points on Lake Erie from the harbor at Charleston, or the mouth of the Black river.

Manufactures and other exports.—Wellington and Elyria have been celebrated for the carriages made by Messrs. Tripp and Toppliffe, and Elyria now sends hubs, spokes and felloes, with other carriage timber, in all directions from the factory of Mr. Ely; Amberst and Brownhelm, export stones for building and other purposes, immense quantities of ~~ship~~ and ~~stone~~ timber have been taken to the lake from all parts of the county, and formerly large quantities of pot and pearl ashes were exported. Fish are taken from the lake and sent to various markets inland.

Markets.—In addition to the distant markets to which the Lorain farmer

has access by the railroads which pass through the county, and the lake on its northern border, there are in the county three villages which consume much of the productions of the county immediately surrounding. Elyria, the county town, is pleasantly situated between the two branches of Black river, near their junction, the Cleveland and Toledo railroad passing through it. Wellington is an enterprising village on the Cleveland, Columbus and Cincinnati railroad; and Oberlin, where there is by far the largest college in the State, is on the Cleveland and Toledo road.

Agricultural Societies.—A county agricultural society was organized at Elyria in 1833, but continued in activity only a few years. In 1846 a new society was established, which continues in operation without diminution of interest. The grounds formerly occupied for the county fair were held on lease, which having expired, the Society last year purchased eighteen acres eligibly situated, where the necessary buildings are about to be erected. The length of the county in a direction north and south has led to the formation of another agricultural association at Wellington, with which several of the southern towns are connected. This society has held spirited exhibitions for several years.

Elyria Natural History Society.—It may not be out of place here to make a brief record of this association. It was organized in 1844, for the cultivation of the physical sciences, and for the purpose of teaching, through public lectures, their application to the affairs of common life. Such sciences as botany, chemistry, geology, zoology, etc., etc., were distributed among the working members, who were physicians, lawyers, clergymen, teachers and others, and each one was expected to collect whatever was of interest in his department, and be ready to present it to the public on short notice. A convenient hall was obtained, and one public lecture a week given regularly, and almost without a failure, for a period of about five years. By the members of this society a complete natural history survey of the county was made, and collections illustrating nearly every department were gathered. Reports were obtained from members on many of the interesting scientific questions of the times, such as potato rot, pear blight, milk sickness, cholera, Indian remains, etc., etc. Unfortunately neither the community nor the members of the society fully understood the importance of the work. The transactions of the society were never published, even in the village papers, and when by those changes to which all western villages are liable, the active members left, one after another, for more inviting fields, their collections, which were private property, were carried with them. Somewhat of the scientific interest awakened by this society still remains with the people, but the knowledge acquired and taste developed among the working members has been expended elsewhere. Perhaps every county seat or

considerable village in the State might establish and sustain a similar association. May we express the hope that such attempts in other places may not so soon terminate in *hie jacet*.

Farmers' Clubs.—A township farmers' club was organized in the township of Avon, and a township fair held in 1855. Regular meetings were held monthly, in the evening, and at the beginning of the month. The organization was exceedingly simple and the expense trivial. To awaken and continue the interest, the following methods were adopted :

1st. Discussions, usually upon topics connected with the work of the month just entered upon, whether of the farm, orchard or garden. This gave a sufficient range of topics, and to the immediate question under discussion, a present interest.

2d. Exhibitions. Any member having a fine specimen of grain, fruit or other product, brought it to the meeting. If fruit was brought in quantity sufficient to convert the meeting into a tasting committee, it afforded a pleasant change from mere talk. Objects of curiosity, insects, minerals, implements, etc., were presented, and served to elicit or convey information.

3d. Questions. After these matters were disposed of, it was allowed to members to make inquiries in regard to any matter of special interest to them. How to treat a sick animal, build a house or barn, make a gate or a cistern, or drain a field,—and to obtain answers from whoever was best informed.

4th. Advertising was cheaply effected through the agency of the club. Whoever wanted to buy or to sell was invited to make his wants known, often greatly to the mutual gain of members.

5th. Reports were made from time to time by committees who had been appointed to investigate any new or other object of interest.

6th. Lectures from members of the club and others on any topics having an agricultural bearing.

In addition to these methods of giving interest to meetings, visiting committees, township fairs, and plowing matches were all employed to make the organization as useful as possible. But finally the rebellion broke out, and men ceased to talk over the peaceful pursuits of the farm, and went at their country's call to participate in sterner duties. So the club died, but not without hope of a resurrection.

County Club.—More recently a county agricultural club has been organized, and holds monthly meetings in Elyria, which, however, but few attend who live at a distance. If it can be demonstrated that county clubs are more useful or more easily sustained than a club in each town, the fact should be known. At present we think that question entitled to a Scotch verdict, "not proven."

Agricultural Papers.—The *Ohio Farmer* circulates among Lorain county farmers. It seems, however, that many of them take agricultural papers published out of the State, not being sufficiently aware of the superior value of a paper published nearer home. A home paper contains all the advertisements they are interested in seeing, and is written with reference to the soil and climate and productions of their own State, and by persons, both as regards editor and correspondents, whom they know, and therefore know what percentage to add or subtract from every statement.

Conclusion.—This paper has been begun and finished while one snowy covering has hidden the soil of the county from view. Had the matter been under consideration longer, visits would have been made to various parts of the county, and much interesting material gathered, and possibly some mistakes avoided.

The present condition of the county represents the labor of fifty years, that being the time since which many of our towns were settled. Now the population numbers 30,000. The assessed value of lands is \$6,939,189; of other property, \$5,231,662. Excellent common schools, one noble college, numerous churches, and other organizations, whose object is the good of our own citizens or of strangers, have been established. These, with our means of communication by mail, telegraph, railroad and lake navigation, show that the preliminary labors of a grand civilization have been well begun. Our fathers, with little to depend on besides a fertile soil, a genial climate, vigorous bodies, inured to labor, a spirit above discouragement, and the blessing of God, have done what we see. A few of them, harder than the labors they performed, or the hardships they endured, still retain an honored place among us. They have not lived in vain. Our sons enter upon the next fifty years at great advantage. How much of what is good among us will they preserve and make better? How much of what is evil will they do away with? How much that is unfinished will they perfect? There is manifestly much to do, both for the soil and the people, before the land shall yield its whole strength, and the people be so wise as to make the best of all their resources, and learn to enjoy all the gifts of the Beneficent Father with thankfulness.

N. S. T.